Preparation of asymetrically substituted diphenylacetylenes usable in molecular electronics

Abstract

This bachelor's work deals with synthesis of assymetrically substituted diphenylacetylenes and their transformation into (η^4-cyclobutadiene)-(η^5-cyclopentadienyl)cobalt complexes, which should be used and researched as molecular rotors.

Multistep synthesis concerning conversion of primary arylamines into tertiary by *N*-permethylation, nucleophilic acyl substitution and Sonogashira coupling was prepared asymmetrically substituted diphenylacetylene with, which consequently underwent cycloaddition [2 + 2] with cyclopentadienyldicarbonylcobalt. Creating (η^4-cyclobutadiene)-(η^5-cyclopentadienyl)cobalt complexe was identified by MS.

Keywords: diphenylacetylene, Sonogashira coupling, (η^4-cyclobutadiene)-(η^5-cyclopentadienyl)cobalt complex, cycloaddition [2 + 2], molecular rotor